

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference DCSP96074WO/JEC	FOR FURTHER ACTION See Form PCT/PEA/416	
International application No. PCT/GB2004/004167	International filing date (day/month/year) 30.09.2004	Priority date (day/month/year) 03.10.2003
International Patent Classification (IPC) or national classification and IPC C09K11/06, C07D209/12, G01N33/58		
Applicant COVENTRY UNIVERSITY et al.		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand 29.04.2005	Date of completion of this report 20.02.2006	
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Nemes, C Telephone No. +49 89 2399-7223	



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International application No.
PCT/GB2004/004167

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-13 as originally filed

Claims, Numbers

1-10 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	none
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	none
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	none

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V. Reasoned statement

1. The following document is referred to in this communication:

D1: WO 01/11370 A (BAYER AG) 15 February 2001

2. Novelty

The subject-matter of independent claims 1,6-9 is considered to be novel, since the photoluminescent compound, the protein detector and the methods described therein are not described in the cited prior art.

Therefore, claims 1-10 fulfil the requirements of Article 33(2) PCT.

3. Inventive step

Document D1 discloses (cf. pages 51-56) photoluminescent indolenine squaraine dyes for labelling/detecting proteins.

The subject-matter of independent claims 1,6-9 is distinguished from this closest prior art through the following feature:

- the photoluminescent squaraine dyes of D1 contain reactive groups (e.g $N=C=S$ or $N=C=O$) that allow the covalent binding of the dye to the protein to be labelled/detected. The dyes according to the present invention do not contain such reactive groups and therefore they cannot be covalently attached to proteins.

The objective technical problem to be solved by the present invention may therefore be regarded as to provide further photoluminescent indolenine squaraine dyes for detecting proteins.

The Applicant has solved the objective technical problem in an inventive manner. Because of the lack of reactive functional groups, the dyes of the present invention are not suitable for covalent protein labelling but can be used for non-specific protein detection and quantification. Being aware of the disclosure of document D1, the

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(SEPARATE SHEET)**

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person skilled in the art would not consider it obvious that the compounds of the present application are suitable for detecting proteins. Therefore, the subject-matter of present claims 1-10 appears to involve an inventive step, thus, the claims fulfil the requirements of Article 33(3) PCT.

4. Industrial applicability

Claims 1-10 fulfil the requirements of Article 33(4) PCT.

Re Item VIII. Certain observations on the international application

Claim 6 contains a reference to the description. According to Rule 6.2(a) PCT, claims should not contain such references except where absolutely necessary, which is not the case here.